

# Design Manual III, CHAPTER 4 ADEQUATE ROAD FACILITIES REQUIREMENTS



# PURPOSE

- To determine “LEVEL OF SERVICE” of intersections and critical roadway segments within an impact area (1.5 miles PSA, 2.0 miles outside PSA) of a proposed development. Intersections studied are Major Collector(Burntwoods Rd) or higher in PSA. Minor collector(Font Hill) or higher outside the PSA. Study submitted with Sketch or Preliminary Equivalent Sketch Plan.

# Exempt Developments

- Essential county government facilities (Police, fire, medical services, highway maintenance)
- Federal or state projects or county schools
- Agricultural subdivisions (family owned)
- Minor residential subdivision (4 lots or less)

# Level of Service

Level of service range from A (free flow) to F (Jam condition)

\*Acceptable Level of Service “D” county Roads

\*Acceptable Level of Service “E” State Roads

Congested intersections include Level of Service ratings of “E” or “F.”

Level of Service “E” = Critical Lane Volume from 1,450 to 1,600 (v/c range from 0.91 to 1.00 or 91% to 100% of capacity). Vehicles per hour.

Level of Service “F” = Critical Lane Volume greater than 1,600 (v/c range greater than 1.00 or 100% of capacity or greater).

The perfect intersection clears 100% of the waiting platoon of cars with each phase and cycle. Zero cars left over.

# Traffic Volumes Counted in Study

- Existing traffic counts 7-9 am and 4-6 pm during the school year. Good for one year.
- Site generated traffic (projected from ITE)
- Background traffic from approved studies not yet constructed
- Future growth of 3% for 3 years. Projects with longer buildout assume 6% beyond 3 years.

# Trip Generation and Trip Distribution

- Trip Generation: Rates determined from empirical formulas within the ITE (Institute of Transportation Engineers). Projects of similar characteristics.
- Trip Distribution: Trips generated by the proposed use will travel in all directions. Evaluate road uses, destinations, the proposed use, and percent of existing traffic.

# Trip Generation

## TRIP GENERATION RATES

### LAND USE

### FORMULA

### DISTRIBUTION

General Office (ksf, ITE-710)

$$\text{Ln(Morning Trips)} = 0.80 \times \text{Ln(ksf)} + 1.55$$

88/12

$$\text{Evening Trips} = 1.12 \times (\text{ksf}) + 78.81$$

17/83

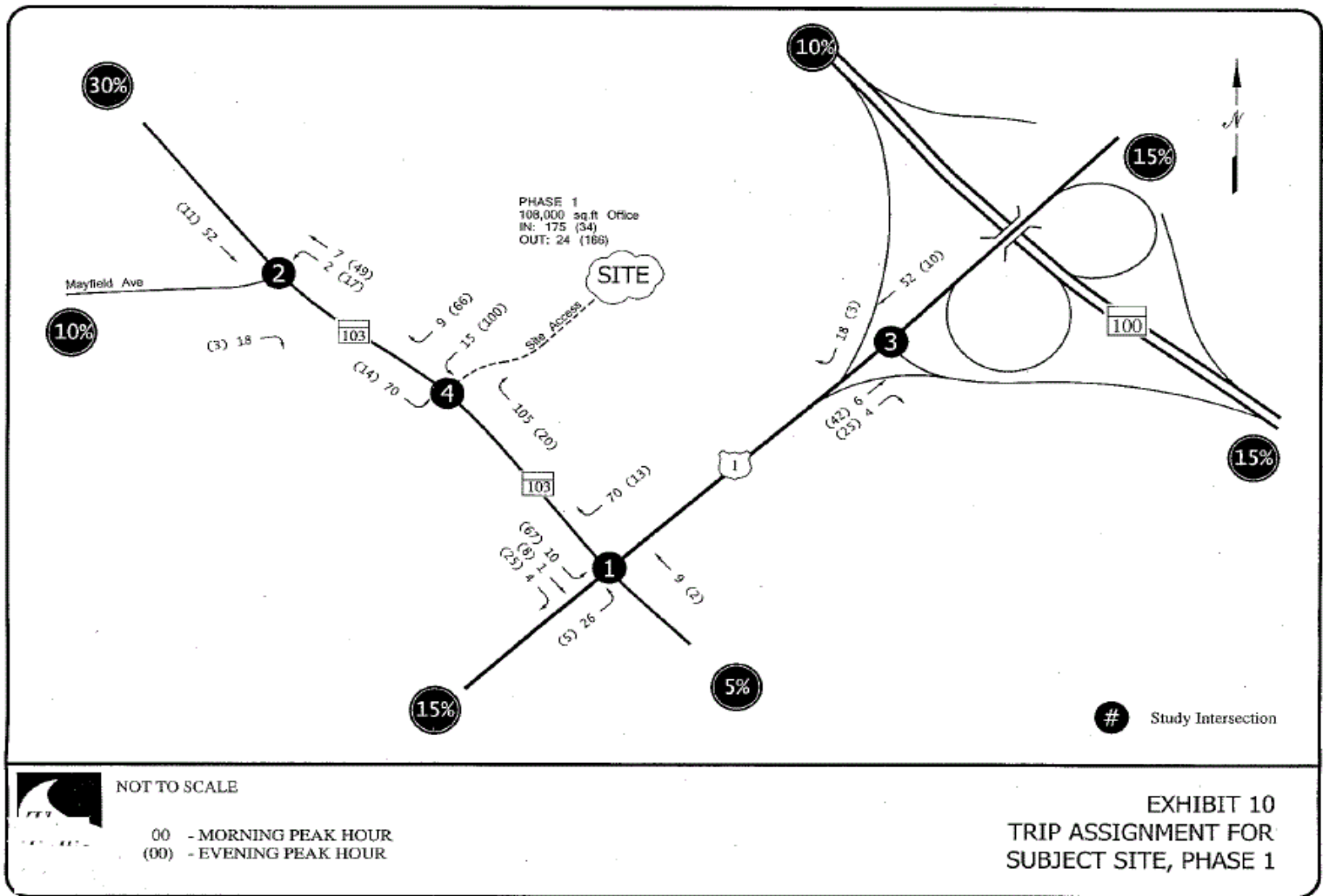
## TRIP GENERATION TOTALS

		MORNING PEAK HOUR			EVENING PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
<b>Phase 1</b>							
108,000	sq.ft. General Office	175	24	199	34	166	200
<b>Build-Out</b>							
657,600	sq.ft. General Office	744	102	846	139	676	815



EXHIBIT 9  
TRIP GENERATION FOR  
BUSINESS PARK

# Trip Assignment





# Results Summary

## RESULTS OF INTERSECTION CAPACITY ANALYSIS

	EXISTING	YEAR 2011		YEAR 2028	
		BACKGR'D	TOTAL	BACKGR'D	TOTAL
MORNING PEAK HOUR TRAFFIC					
1. US 1 MD 103	C/1166	E/1455	E/1524	F/3374	F/3670
2. MD 103 & Mayfield Ave	A/906	C/1191	C/1261	F/2867	F/3164
3. US 1 & MD 100 EB Ramp	A/710	A/917	A/945	F/2231	F/2354
4. MD 103 & Site Access	---	---	B/1017	---	F/2599
EVENING PEAK HOUR TRAFFIC					
1. US 1 MD 103	C/1250	E/1520	E/1553	F/3577	F/3712
2. MD 103 & Mayfield Ave	A/704	A/985	B/1068	F/3278	F/3753
3. US 1 & MD 100 EB Ramp	A/997	C/1261	C/1284	F/3104	F/3196
4. Site Access & MD 103	---	---	A/768	---	F/2048

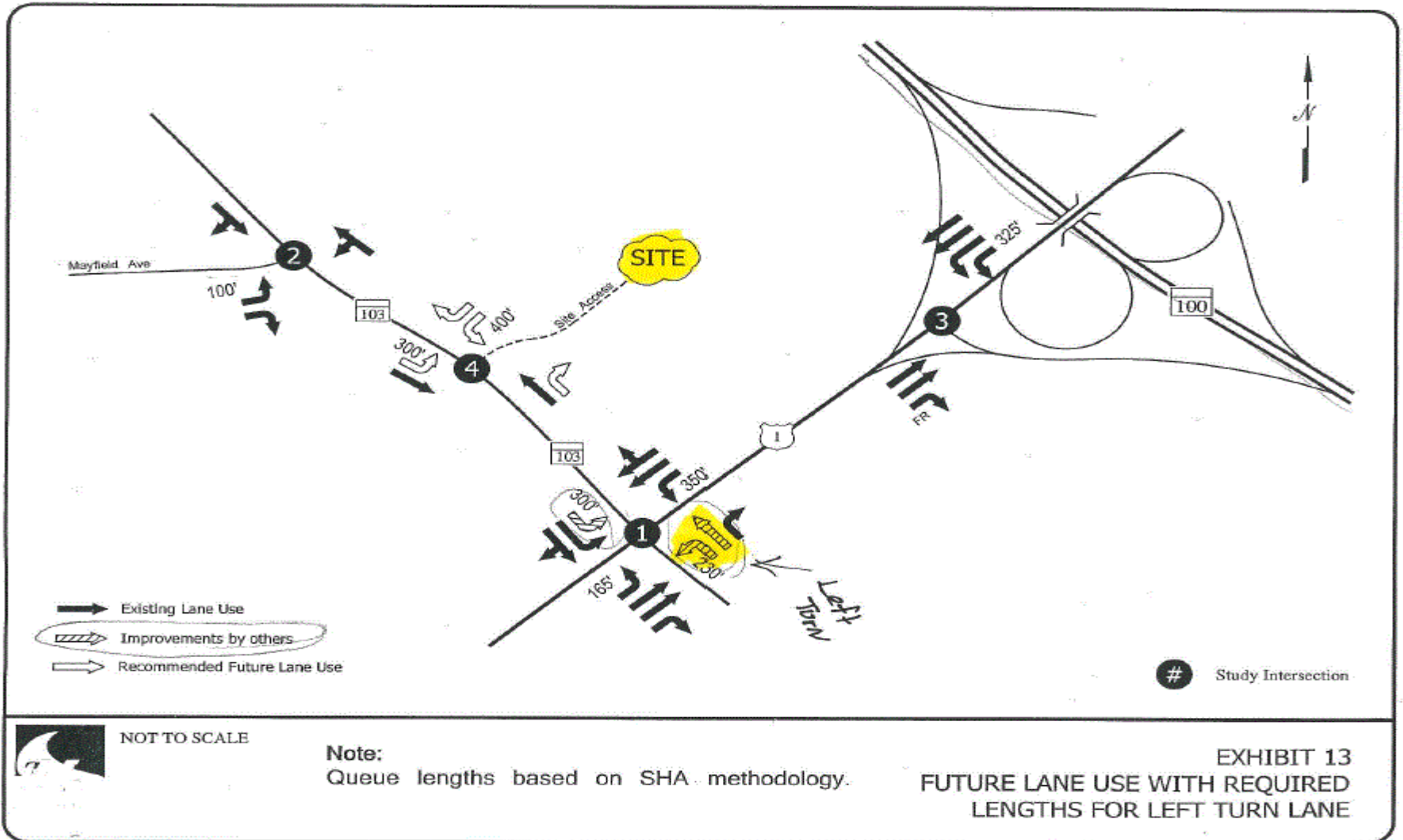
### NOTE:

1. Background Traffic is derived from combining Existing Traffic, growth and traffic to be generated by approved developments.
2. Total Traffic is derived from combining Background Traffic and traffic to be generated by site.



EXHIBIT 12  
RESULTS OF INTERSECTION  
CAPACITY ANALYSIS (CLV)

# Lane Use Summary



When this happens, mitigation is required



# Mitigation

- If intersection fails the following options:
  - Defer project until someone else fixes the road
  - Reduce project Scope
  - Mitigate intersection with lane improvement
  - Shared developer or capital project fee

# Mitigation

- Construct lane improvement to mitigate the LOS to an acceptable level. Plans included in F or SDP and bonded as p/o a Developer Agreement.
  - Grade separated improvements will not be required. County will program these improvements in to Capital projects and take a fee proportional to the percentage of the development traffic.
  - Existing Capital project exists a fee maybe accepted to offset the cost for the County of the required improvement. Fee will pay portion of mitigation based on the trips generated over capacity.